LOUISIANA

Conservationist

July/August 1984

J. Burton Angelle Sr., *Secretary*

comments . . .

Fiscal matters dominated this year's legislative session and grabbed most of the headlines as Louisiana taxpayers were asked to accept increased taxes and efforts made to identify areas in state government where budget cuts were possible.

Every effort was made to assure an often skeptical public that their tax dollars were being spent wisely.

As a businessman I know the importance of making every dollar count and as a sportsman and longtime wildlife manager I also understand the necessity of maintaining proper wildlife management.

I would like to take just a few minutes and assure Louisiana taxpayers and sportsmen that the Department of Wildlife and Fisheries is doing both.

This department's yearly budget of approximately $36 million is one of the smallest of the 20 departments of state government and amounts to less than one percent of the total state operating budget of $4.5 billion.

The small size of our budget is reflected by the fact that last year Louisiana duck hunters alone spent an estimated $37 million in pursuit of their sport. This one small segment of the people served by Wildlife and Fisheries contributed more to the economy of this state than the budget of the entire department.

We are unique in state government in that we are the only department that operates exclusively on self-generated funds. These funds, from a variety of sources, are dedicated to wildlife management and conservation and cannot be used for other purposes.

Let me assure you that just because we do not use tax money does not mean that we do not watch our pennies. We are under the same budgetary regulations and legislative accountability as any other branch of state government.

I have been intimately involved in state government for a long time and firmly believe that the Department of Wildlife and Fisheries is second to none in getting the most out of every dollar. I can assure Louisiana taxpayers, sportsmen, commercial fishermen and trappers and the consuming public that they are getting their money's worth from this department.

Contrary to what I perceive to be popular belief, license fees for hunting, fishing and trapping make up only one-quarter of the department's total operating budget. For the last full fiscal period, license sales generated less than $7.5 million of the $36 million total.

The largest single portion of our operating revenue comes from mineral royalties on land owned by the department. Louisiana enjoys some of the lowest priced hunting and fishing licenses in the nation and much of the credit for making these bargains possible for Bayou State sportsmen lies with this royalty income.

Our biologists have long maintained that wildlife and proper land utilization can coexist and even thrive and Louisiana stands as a shining example of how industry can not only coexist with but even be beneficial to wildlife.

Royalty payments from department owned land totaled over $16 million last year. This income was on land purchased by the department for use as wildlife management areas and land donated to the department as wildlife refuges whose deeds of donation require any revenue derived from the land to be used for wildlife conservation.

Most notable among these is the huge Rockefeller Wildlife Refuge and Game Preserve in southern Cameron and Vermilion parishes. Royalties from this one refuge approached $8 million. Rockefeller Refuge plays host to literally hundreds of thousands of waterfowl, scores of deer, fur bearing animals, alligators and one of the best research facilities of its kind in the world. Its waterways, teeming with shrimp, crabs and fish, are utilized by thousands of recreational fishermen. Mineral development not only provides the funds to operate this facility, but through proper management techniques such as directing spoil placement to form much needed levees has even contributed to habitat improvement.

In the mid-1970s, it was evident that these royalties would not last forever and instead of sitting idly by, we, with the help and support of Governor Edwards and the Louisiana Legislature, established trust funds for Rockefeller, State Wildlife and Marsh Island refuges. These trust funds were to assure the proper management of these refuges with recurring interest payments when mineral revenues are exhausted. This action is already beginning to pay big dividends, with interest from these trust funds topping $4 million last fiscal year.

The last major source of funding for the department comes in the form of federal funds brought into the state under the Dingell-Johnson (D-J), Pittman-Robertson (P-R) and other federal programs. These monies approached $3 million last year and are expected to increase with the passage of the D-J expansion bill.

The services this department renders are much too numerous to list here, but it is accurate to state that it is hard to live in the Bayou State and not be affected by the actions of this agency.

If you enjoy wildlife, or the outdoors or are a consumer of Louisiana's bountiful supply of seafood, then what we do affects you directly. In addition, the economic value of this state's commercial seafood industry is estimated at $1 billion annually. The economic value of our recreational fishing and hunting may even top that figure.

I get carried away and could go on for hours about the many successes of this department. Space limitations, however, limit my discourse. I must say in closing, though, that the approximately 800 individuals, many of whom I know personally, that make up the Louisiana Department of Wildlife and Fisheries are some of the best, most dedicated and hardest working folks I know. I am proud to be a part of them.

LOUISIANA Conservationist

Published by the Department of Wildlife and Fisheries in the interest of conservation of Louisiana natural resources.

Louisiana Conservationist
(ISSN 0024-6778)
Volume 36, No. 4
New Orleans, Louisiana 70130

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The Louisiana Conservationist is published bimonthly by the Louisiana Department of Wildlife and Fisheries, 400 Royal Street, New Orleans, LA 70130; editorial office, P.O. Box 15570, Baton Rouge, LA 70895. Second-class postage paid at New Orleans, LA 70130. Postmaster: Send address changes to Louisiana Conservationist, 400 Royal Street, New Orleans, LA 70130.

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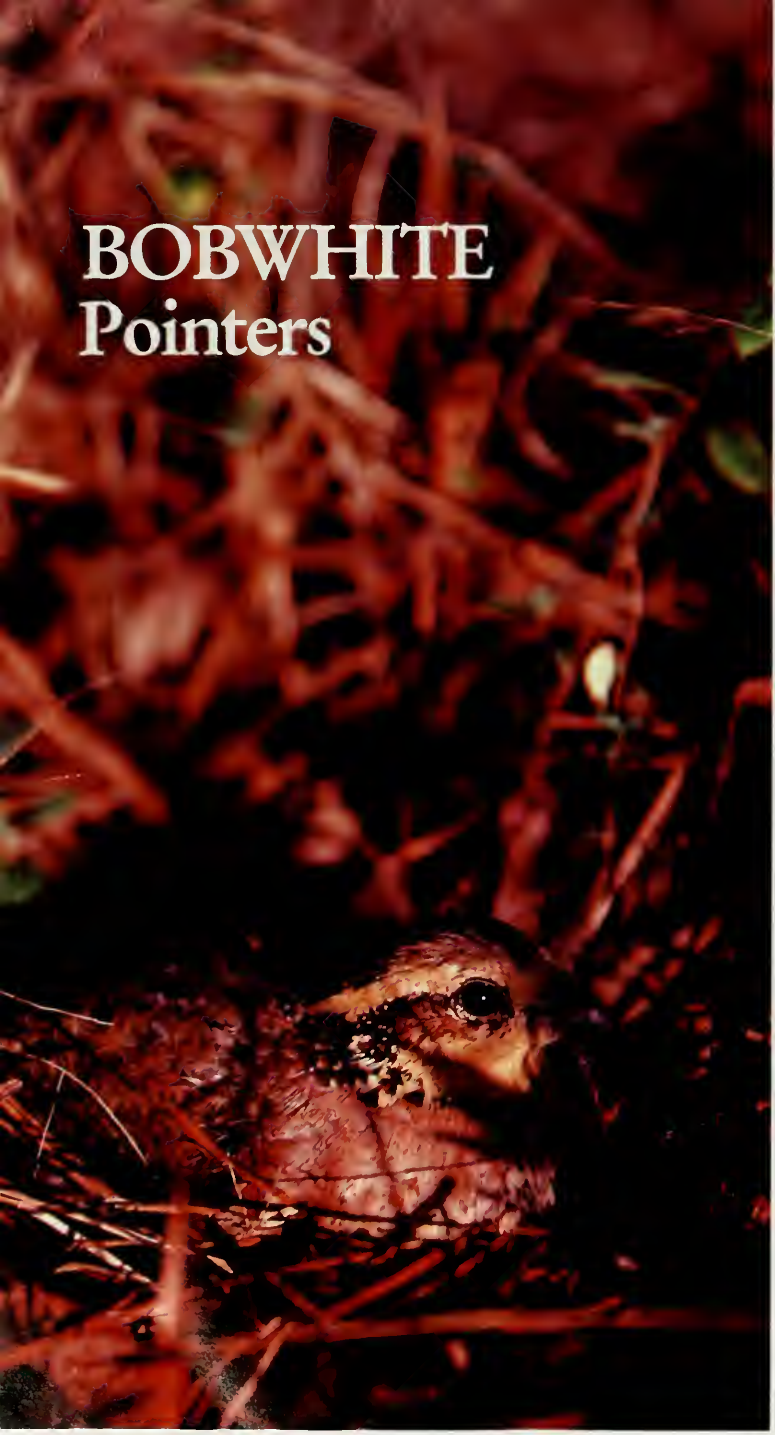
This public document was published at an annual cost of $300,000 or $.25 per copy by Donihe Graphics, Rt. 1, Brookside Road, Kingsport, Tennessee, to foster the department's overall program of conservation of our renewable natural resources, under authority of Article 9, Section 7 of the Louisiana Constitution and Act 11 of 1980. This material was printed in accordance with the standards for printing by state agencies established pursuant to R.S. 43:31. Printing of this material was purchased in accordance with the provisions of Title 43 of the Louisiana Revised Statutes.

BOBWHITE Pointers



Lloyd Poissenot

By Wade Byrd, Mike Olinde and Tommy Prickett

The answer was but one more refrain in a familiar old tune entitled good habitat. The equation is simple, good food and good cover equals more quail.

QUAIL HUNTERS are a put upon lot. Once hopelessly addicted to the sport, they must contend with mates who often are less than thrilled about dogfood and veterinary bills and a couple of scatterbrained bird dogs acting on occasion as though they couldn't sniff out a full-grown cow in a feedlot.

Were it not for the satisfaction of watching the dogs work to a successful point and the ultimate thrill of going for a double as a covey of flushed bobwhite quail literally explodes into a blur of whirring wings rocketing off in all directions, such abuse would border on masochism.

The steady long term decline in quail populations and open hunting lands in recent years is like salt on an open wound to Louisiana's estimated 40,000 quail hunters.

These little birds at first glance seem unlikely candidates for all the attention and devotion afforded them, but the more you get to know bobwhite quail the more you realize that these six-ounce packages of flesh and feathers are truly remarkable creatures. Their characteristic "ah-bob-white ah-bob-white" whistles have stirred the passions of many fledgling outdoorsmen on cool spring or summer mornings.

Quail lead a rigorous life, with approximately 80 percent of the total population perishing each year, whether they are hunted or not. Hunting only allows some of those birds that would otherwise be lost to natural causes such as starvation, disease and predators to be utilized by man. The remaining 20 percent of the population, because of high reproductive capacity, is more than adequate to replenish the population and even expand it should habitat conditions improve.

Breeding activity in Louisiana begins in mid-April as quail start to pair off and establish nests. As is the case with most ground nesting birds, a majority of quail nests are destroyed. Quail are persistent, however, and will continue to try again until three-quarters of the hens eventually establish a successful nest of 8–12 eggs, 90 percent of which produce chicks.

Chicks are hatched hungry and within a short time are foraging for food with their parents. Insects make up a high proportion of their diet the first summer, but within a few weeks fruits, berries and seeds are also being consumed. By the beginning of hunting season, the juveniles, now resembling their parents, are strong fliers and feed predominantly on seeds and mast.

When the early settlers were carving their homesteads out of the virgin pine and hardwood forests of the Bayou State, quail populations were only a small percentage of what they would eventually become.

With early farming practices of small plots and overgrown hedgerows, quail populations began to flourish. This quail population explosion witnessed the rise and fall of cotton as "king" in Louisiana and continued well into the early decades of this century.

The early thirties saw the beginning of the decline in quail populations on Louisiana's agriculture lands to their present day levels as modern farming techniques, particularly the shift to large one crop fields, use of pesticides and herbicides, clean farming operations that eliminated weeds, thickets, briar patches and hedgerows, coupled with the switch to cattle and conversion of fields to improved pastures all contributed to the decline of quail

At the same time shifts in farming practices were having such a drastic effect, changes were also occurring on the birds' other range, the piney woods. By the mid-forties, some 4,000,000 acres of

Lloyd Poissenot

The best woodland habitat for quail in the state has historically been associated with the longleaf and shortleaf pine forests. With the creation of the Upland Game Section, the Department of Wildlife and Fisheries began to focus more attention on the plight of the state's pinelands. Cooperative agreements with several timber companies allowed more intensive quail management to be practiced on lands open to the public while comprehensive programs were instituted on wildlife management areas with suitable quail habitat.

It soon became evident that if a showcase upland quail management area was to be developed, timber rights were a necessity. With this in mind, the department began to actively seek a tract of upland pineland habitat for the purpose of providing an area where state-of-the-art quail management could be implemented. Such an area would provide an extremely valuable demonstration and research facility, offer a limited amount of quality hunting and serve as a site where field trials could be conducted.

Funds for such a purchase have been approved and a number of tracts are currently undergoing detailed evaluation. Anyone knowing of an upland site with a minimum of 3000 contiguous acres of predominantly pine forestland which could be purchased is asked to contact:

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virgin longleaf pine were cut in southeast and southwest Louisiana. This cutover pineland produced an abundance of quail for a few years until dominant grasses became too dense for quail, inhibiting their movements and choking out valuable food producing plants.

This rise and fall of quail populations was initially blamed on many causes, but in reality stood in stark testimony to what was actually the key to having quail aplenty. The answer was but one more refrain in a familiar old tune entitled good habitat. The equation is simple, good food and good cover equals more quail. Bobwhite quail are perfect examples of wild creatures whose fortunes are closely linked with the practices of man. Louisiana quail populations have ebbed and flowed with the changes in land use patterns.

Mark Saltz

Clean farming has caused drastic decline in quail populations (top); smaller plots with hedgerows are better for quail (bottom).

While this quail population change for the worse did not occur overnight and any turn for the better will also require time, biologists with the Department of Wildlife and Fisheries have embarked on a vigorous campaign to turn things around.

The department's quail management program is a two pronged attack and involves monitoring current quail populations and attempting to improve habitat to increase future populations.

Just keeping up with current population trends of birds as shy as quail is no easy task. Biologists with the department's Upland Game Section employ three basic methods to keep track of what is going on. These are harvest surveys, fall whistling counts and wing surveys.

As part of an annual small game survey, quail hunters across the state are surveyed. This allows for an estimate of total harvest the previous season. These numbers can be compared with earlier seasons to give biologists an early indication of population fluctuations. Quail harvests recently have stabilized around 400,000-500,000 birds annually.

The experimental fall whistling count is a field survey designed to provide an index of fall quail population density. This survey is conducted the last week of October and was expanded statewide last year. It provides biologists with their best preseason estimate of bird populations.

Wing surveys are the most comprehensive aspect of the three part monitoring program. Avid quail hunters across the state are enlisted by the department and submit wings from birds taken by them during the season. The age of quail can be determined by examining its wing feathers and an estimate of reproduction that occurred during the preceding summer can be made. From these surveys it was learned that peak hatching in Louisiana occurs from late July to mid August.

Serious quail hunters who would like to participate in this survey should contact the department's Upland Game Section office in Baton Rouge or their nearest district biologist. Interested hunters from north and north central

Recently clearcut pine forest is poor quail habitat.

Mike Olinde

Thick immature pine trees with little understory growth from years 6–15 make poor quail habitat.

areas of the state are particularly encouraged to participate because of the small sample sizes from those areas.

The department's habitat enrichment program focuses on two approaches, improving habitat on lands open to the public and providing technical assistance and a limited amount of food plot seed mixture to private property owners interested in improving their land as potential quail habitat.

The department is involved in a year-round wildlife food plot planting program on its wildlife management areas and on some large tracts that through cooperative agreements with the landowners are open to the public for hunting. Most of the planting of valuable wildlife food plants such as browntop millet, cowpeas, common lespedezas and pearl millet occurs April through September, with some planting of lespedezas during the winter months. These food plots are beneficial to many species of wildlife in addition to quail.

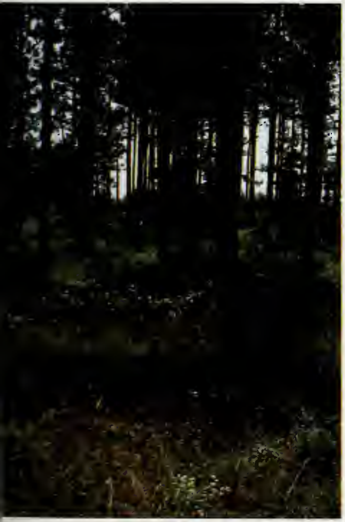
Private landowners who wish to improve the quail potential of their property are provided with free technical assistance from department biologists. Managing a piece of property for quail simply means manipulating food and cover plants to satisfy the birds' needs.

Louisiana's two primary quail ranges, piney woods and agriculture lands, are very different and the methods employed to manage them for maximum quail utilization while similarly diverse still share the same goal—providing diversified cover in close proximity to high quality food. The plow, fire and ax are three basic tools used to accomplish this task.

Department biologists first identify factors on a specific site that are limiting quail populations and then recommend corrective action. Suggestions frequently include a system of prescribed burning, planting food plots, fallow disking, establishment of fence rows or cover strips, limiting size of forestland clearcuts and control of livestock.

With proper management, bobwhite quail should continue to thrive in the Bayou State and the thrills of hunting this prince of upland game birds be enjoyed by future generations.

Habitat is good for quail for 1–5 years as understory growth takes over.



After mature forest is thinned and understory growth begins, area is again good for quail.

Helpful Habitat Hints

Farmlands

1. Break up large fields by establishing cover strips of shrubbery and woody vegetation.
2. Establish field borders in grasses or legumes as transition zones, feeding sites, travel lanes and nesting cover.
3. Develop odd corners and unfarmable areas to provide food and cover.
4. Establish food patches, if necessary, close to adequate cover.
5. Eliminate livestock, where possible, and control grazing in pastures.

Woodlands

1. Thin trees so that adequate sunlight can reach the forest floor.
2. Institute prescribed burning program to control rough vegetations, eliminate ground litter, maintain cover at the proper density and encourage production of native foods.
3. Disk strips to eliminate fire when necessary from cover and hardwoods, provide nesting edge and travel lanes, increase food production and control rough vegetation.
4. Exclude livestock where possible.
5. Establish food and cover plantings if necessary.

A "WUNNERFULL" BIRD

IS THE PELICAN

By Maurice N. Cockerham

Photography by Guy LaBranche

Louisiana's brown pelican population once numbered fifty thousand . . . and then disaster struck. Now the state's official bird is making a comeback and biologists with the Department of Wildlife and Fisheries are determined that it will be a permanent success.

LOUISIANA'S MAJESTIC state bird, the brown pelican (Pelecanus occidentalis carolinensis), is once again becoming a familiar sight along the Gulf coast. During the second week of June, a team of Wildlife and Fisheries biologists from Rockefeller Refuge opened the latest chapter in an ongoing and very successful 16 year old program to restore the brown pelican to its full natural range on the Louisiana Coast.

Fifty young pelicans were transferred from the active nesting colony on Queen Bess Island in Barataria Bay (after an interesting round-up in which the birds were chased through the muck and mire of that swampy island and captured by hand) to Raccoon Point on Isles Dernieres south of Houma. The project is intended to establish the third active nesting colony in the restocking program, and the most westward colony to date.

Once numbering more than fifty thousand birds, the brown pelican was a common sight to anyone visiting Louisiana's sprawling coastal region. Then the birds began to disappear. The declining population of brown pelicans in Louisiana was first reported officially in the 1950s and, by that time, the pelicans were in serious trouble and facing virtual extinction in Louisiana. In 1961, a few young pelicans were hatched on North Island in the Chandeleurs. (Southeast Louisiana, and particularly the Chandeleur Island chain, had always been the stronghold of Louisiana's brown pelicans.) That was to be the last report of successful nesting in Louisiana for a full decade. Within a year, the colony at North Island contained only six pelicans, and there was no nesting activity. By 1963 the state's official bird had virtually disappeared from the Louisiana coast.

Intensive research would later reveal that pesticides and herbicides, particularly chlorinated hydrocarbons such as DDT, were killing the pelicans. The toxins were accumulating in the Mississippi River as that great waterway coursed through the heart of the nation. They passed through the food chain until they were finally consumed by the pelicans. The end result was two-fold.

In the first place, the toxins were retained in the pelicans' fatty tissues, rather than being passed through the birds' systems. In times of stress, such as severe weather or low food supplies, a high level of toxins entered the pelicans' systems and death resulted.

The chlorinated hydrocarbons also exerted a deadly effect on the reproduction of the brown pelicans. Research revealed that the chemicals inhibited the birds' ability to produce normal egg shells. In many cases, the shells were so thin that they actually collapsed. As a result, there were no new pelicans to replace those killed by poisoning or by such natural causes as hurricanes.

In 1968, representatives of the Louisiana Department of Wildlife and Fisheries, the U.S. Fish and Wildlife Service, and the National Audubon Society met with the officials of the Florida Game and Freshwater Fish Commission and instituted a cooperative program with the objective of reestablishing the brown pelican in Louisiana by stocking previously occupied sites with young birds from the stable and active Florida colonies.

In the ensuing sixteen years, 1,276 young brown pelicans have been captured from the Florida colonies and transferred to Louisiana. Releases were made in the Chandeleur Islands, at Queen Bess Island in Barataria Bay near Grand Isle, and at the Rockefeller Refuge in southwestern Louisiana. Although the effort at Rockefeller eventually failed, active breeding colonies were established at the other two sites. By the end of the 1983 nesting season, some 2,500 young pelicans had been hatched and fledged at the two sites.

With the two colonies in southeast Louisiana successfully reproducing and expanding, the biologists turned their attention to former nesting areas in the south central coastal area. It was decided that a new colony would be attempted using native Louisiana birds.

Only a mother could love a baby pelican.

By the end of the 1983 nesting season, some 2,500 young pelicans had been hatched and fledged at Louisiana's two active colonies.

The chase is on . . . , as unwilling immature pelicans are rounded up and placed into burlap sacks for transport.

On June 4, a three-man team of biologists, composed of Research Leader Ted Joanen, Larry McNease and Dave Richard, all from the Fur and Refuge Division's Rockefeller Wildlife Refuge, arrived at the Marine Lab on Grand Terre Island near Grand Isle. Seafood Division personnel stationed there, including Vince Guillory, Rick Kasprzak and Joe Shepard, furnished logistical support for the operation.

Late that evening, a survey was made of the nesting colony on Queen Bess Island, large wire cages were strategically placed on the east and west shores of the island and final plans were made for the Great Pelican Chase.

Daylight of the 5th found the small team floundering through the mud and droppings of the nesting area, capturing young pelicans that had not quite mastered the ability to fly. The captured birds were placed in burlap bags and then transferred to the waiting cages.

After a few hours of mud wrestling, the count stood at 50 birds, and the bedraggled crew had enjoyed just about all they could stand of that kind of fun. The cages were then transferred to the Enforcement Division's brand new patrol boat "Delta Tide." Agents Willie Dufrene and John Lopez looked on bravely as the neat cleanliness of their new vessel disappeared under a mass of angry birds and their wet, muddy captors. In a matter of minutes the Delta Tide was skimming the choppy waters of the open Gulf on the 100-mile journey to Raccoon Point on Isles Dernieres in Caillou Bay.

Prior to their release, the pelicans were fitted with leg bands to aid in monitoring the progress of the new colony. Then it was back into the burlap bags for the reluctant pelicans. They were transferred to a small boat manned by Fur and Refuge Division's Mark Castile and Dwight Brasseaux for the final run into the marsh on Raccoon Point.

The release itself was made at a carefully selected pond and followed immediately with a robust feeding. The pelicans were then left in the care of Quinn Kinler, a summer employee at Rockefeller Refuge. Kinler was temporarily assigned to the department's nearby Sister Lake Camp with the job of feeding the young pelicans a supply of fish twice each day until they had learned to fly and catch their own food.

Hopefully, the new colony will establish itself permanently under the watchful eye of the department. In two or three years, the newly transplanted pelicans should begin breeding and nesting, adding still another success to the story of Louisiana's brown pelican.

Thousands of seagulls fly overhead as biologists observe pelicans at release spot on Raccoon Point.

COMING ON STRONG

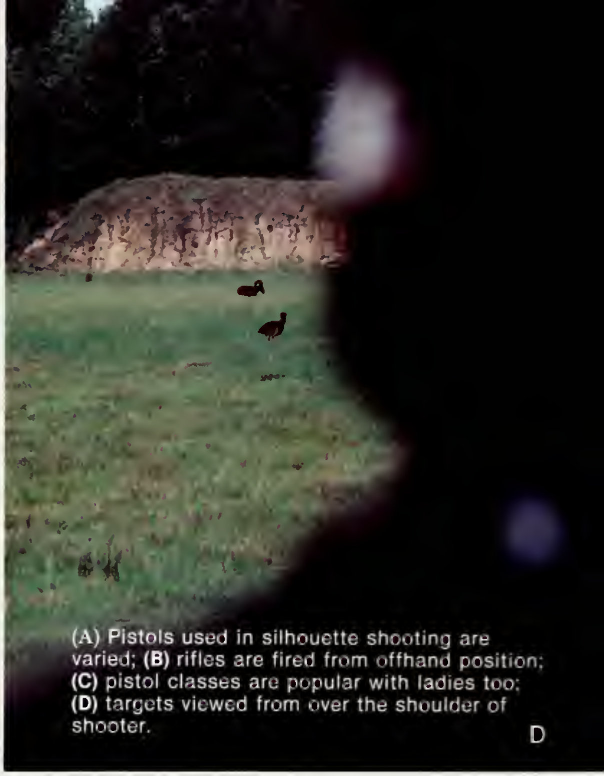
By Jerry McClain
Photography by Mark Saltz

In little over a decade metallic silhouette shooting has grown from a disorganized game into an organized NRA sanctioned sport.

THE SHOOTER stood on the firing line, his rifle in a good, steady offhand position, and carefully squeezed off his shot. Two hundred meters away, the chicken went down—a direct hit.

The rifleman wasn't shooting his dinner. In fact, he'd have a hard time eating that chicken, because it was made of heavy steel plate. The shooter, along with thousands of others like him, was participating in what is the fastest growing form of recreational shooting—metallic silhouette shooting.

The game originated in Mexico back in the days of Pancho Villa, and in many parts of the Southwest it is still



(A) Pistols used in silhouette shooting are varied; (B) rifles are fired from offhand position; (C) pistol classes are popular with ladies too; (D) targets viewed from over the shoulder of shooter.

often referred to by its Mexican name, siluetas metalicas. It was customary in some locales to select the livestock that was to be slaughtered for a fiesta, tether them at various ranges, and let the guests shoot them, after which they would be butchered and prepared for an elaborate meal. Needless to say, that was some pretty expensive shooting, so people began shooting at artificial targets shaped like the animals. Eventually, they settled on silhouettes cut out of heavy steel plate, because they could be reused.

The sport of metallic silhouette shooting crossed the Rio Grande in the late 1960s and early 1970s, and caught on quickly in Arizona and New Mexico. From there, it has spread to the rest of the country in an incredibly short time. One indication of its popularity is the fact that Remington Arms Company has brought out a new cartridge, the 7mm-08 Remington, in a heavy barrel rifle, primarily for metallic silhouette shooters. Many other makers also build guns for this type of shooting, and most of the major telescopic sight manufacturers offer scopes especially designed for silhouette shooting. Not bad for a sport that has only been around for a little over 10 years.

When shooters first discovered this fascinating game, each club that wanted to hold a shoot would write its own rules, often just for that one shoot. This situation created all sorts of problems for shooters who wanted to compete away from their home clubs and made any organized interclub competition virtually impossible. Record keeping was nonexistent. Finally, the National Rifle Association sanctioned silhouette shooting, and a set of rules and standards was adopted.

The silhouettes are now of standard sizes, a fair approximation of the size of the live animal. The course of fire is standardized, and it is a rough one. A sanctioned match consists of 10 rounds fired at each type of target in two strings of five rounds each.

The first target is the chicken. This course is fired at 200 meters, or about 219 yards.

The next course of fire is at 300 meters, or about 328 yards, at the pig target.

The turkey target is next. It is fired at 385 meters—over 421 yards.

The last course of fire is at 500 meters, or about 547 yards, at the ram target.

Shooting at these ranges is always a challenge, because when the target is over 300 yards away, wind drift becomes a real problem. For example, a 10 mph wind, which is not very strong, will move a typical hunting bullet fired from a 308 Winchester about 4½ feet off target at 500 yards range.

But the thing that really makes a silhouette match tough is the fact that all shooting, at all ranges, is done from the offhand position. That's standing up on your hind legs, and holding the rifle with your own muscles and bones. No artificial rests of any kind are allowed.

Another factor that adds difficulty and challenge to the match is the fact that a fairly powerful rifle must be used. Any experienced rifleman knows that no matter how much experience

Conventional pistol class fired from standing position (left); and unlimited pistol being fired from prone position with pistol resting on right leg (right).

he's had, or how much hair he has on his chest, it is much easier to do really fine shooting with a rifle of light recoil than one of heavier recoil.

The match is scored by how many targets are knocked over or knocked off the stand. There are no scoring rings—every shot is either a hit or a miss. If the target is hit and moved, but does not fall over or off the support, it is classified as a miss. To knock the targets over reliably requires a pretty powerful rifle. A typical ram target, for example, weighs about 55 pounds.

The shooter is allowed 2½ minutes to fire each five-shot string. That sounds like a good bit of time, but considering the nature of the course, and the rifles it requires, a metallic silhouette shooter is a mighty busy man for those 2½ minutes, expecially if he's got to dope changing wind conditions.

One of the great appeals of the metallic silhouette game is the fact that you don't have to buy an expensive match rifle to compete. The same rifle you use on a steel ram makes an excellent deer rifle. The rules don't permit the palm rests and hook butt plates commonly used on many specialized match rifles, and the maximum weight of the competitive rifle, complete with scope and mount, is 10 pounds 2 ounces. That's not an unreasonable weight for a hunting rifle—a little heavy, but not outrageous. That weight limitation is a mixed blessing. It means that a competition rifle makes a practical hunting rifle, but two or three pounds added to that weight would be a real help in competitive shooting. Light rifles are harder to shoot than heavy ones, but that just adds to the challenge.

Hunting calibers are generally used in metallic silhouette shooting. Magnums are not used, because they damage the targets and necessitate their early replacement. Two of the most popular cartridges are the 308 Winchester and the 7-08 Remington, which is basically a 308 necked down to 7mm, or 284 caliber.

The 308 has some real advantages. For one thing, it has been around for quite a while, and there are literally reams of loading data for it. It is also one of those very pleasant little cartridges, like the 222 Remington or 250 Savage, that is very easy to load for. There are no tricks, no specialized techniques required. There are some cartridges that, if you want to load them for consistent accuracy, you need at least three witches stirring a cauldron and a little help from The Force. The 308 is not one of them, nor is the 7mm-08.

Another advantage of the 308 is the selection of bullets available for it. Because 30 caliber rifles have been shot in competition in the United States ever since the Army adopted the 30-40 Krag back in 1892, good match grade bullets were readily available in this caliber long before any other. A shooter can buy any of several 30 caliber match bullets and be reasonably sure he's getting a good product.

The 7mms, on the other hand, are a little unreliable. Some lots of them shoot as well as any 30, but if you buy the same bullet, but from a different lot, sometimes they don't perform up to par. But this is splitting hairs, and that problem, which would be devastating to a bench-rest shooter, would probably be much less of a factor to a silhouette shooter. It may well be canceled out by an advantage the 7mm-08 has over the 308, which is its somewhat milder recoil. The difference in recoil is something you'd never notice in an afternoon of casual shooting, but toward the last of a long match it builds up and most of us find that we do better with the lighter-recoil rifle, even if it is a tad less accurate.

The old 30-06 is a good cartridge, and has been around for a lot of years. It has fought two world wars plus innumerable lesser campaigns, taken every kind of game in the world, and won a lot of national matches. In spite of the soft spot that most of us feel for the old Army mule, though, it's not particularly good for silhouette shooting. It's a little more temperamental to load for than the 308, and it has a lot more recoil. Still, if a shooter has a good 30-06, and if he does his part, he's not out of the running.

There are a lot of good rifle cartridges in 270, 257, 8mm and others that would be fine for silhouette shooting, but aren't really competitive because match-grade bullets are not made for them. Match bullets are made in 22, 6mm, 7mm, and 30 calibers, and the silhouette shooter would do well to use a rifle in either 7mm or 30 caliber. The 22 and 6mm won't knock the targets down reliably.

The rifle itself is almost invariably a bolt action, because nothing else has the accuracy potential. A typical silhouette rifle will have a fairly heavy barrel for accuracy and steady holding, and the stock generally has a Monte Carlo comb. This enables the shooter to keep his head more erect, and cuts down on fatigue over a long course.

Telescopic sights are generally used, and the scope must be a good one. Remember that shooting is done at 200, 300, 385 and 500 meters, and the scope must be set for each range. If the adjustments on the scope are not reliable, the shooter doesn't have a chance. Most hunting scopes are not good enough, and nearly all of the scope manufacturers now offer special silhouette scopes. If the shooter is going to be competitive, he should use a silhouette scope. They work fine for hunting, too.

Soon after they found out how much fun it was to shoot at steel critters with a rifle, shooters started using pistols on the same targets at reduced ranges. The National Rifle Association sanctioned pistol silhouette competition in the late '70s, and today the sport is as popular as rifle silhouette shooting.

The rules on pistol silhouette shooting are more complex than on rifle shooting, primarily because of the many different classes of pistols that are fired, restrictions on sights, and the different positions allowed.

The course of fire is similar to the rifle competitlon. All contests call for a total of 40 shots—10 each at the chicken at 50 meters, the pig at 100 meters, the turkey at 150 meters, and the ram at 200 meters.

The classes of pistols used include the hunter's pistol, which may be any action type except bolt action, with any sights, and no major modification. This is no problem; the list includes all the popular handgun cartridges. There is a smallbore subdivision of this class, as with the rifle, in which 22 rimfire guns are used on smaller targets at reduced ranges.

The Conventional Long Range Pistol class is essentially the same, except that only metallic sights can be used. Scopes are not permitted in this class. This class may be fired free style, unlike the Hunter's Pistol class, which must be fired from a standing position.

There is another class, the Conventional Long Range Standing Pistol, that is similar except that it must be fired from the standing position, and a revolver or semiautomatic pistol must be used.

There are two classes for the unlimited pistol, one fired free style and one fired standing. Scopes may be used in the standing matches only. The unlimited class pistol is usually bolt action, and usually made specifically for silhouette shooting. The weapons are chambered for all sorts of calibers. Many are chambered for the 308 Winchester, and believe me, when you fire a cartridge that powerful in a pistol, you know it. These guns are beautiful examples of the gunmaker's art, and many of them are extremely accurate and expensive.

All of the standing match targets are the same size as the rifle targets, but those for the free style shooting matches are half size. Think about it—that's some pretty high class shooting. A half size ram at 200 meters, or about 219 yards—with a pistol. The standing matches are fired with absolutely no artificial rests. The free style is any safe position in which the gun is held and supported only by the body and does not touch the ground or any artificial rest.

The silhouette shooting game is one of the best things to come along for a long time. It has introduced thousands of people to the sport of competitive shooting who would probably never have considered taking it up. Shooting is a great sport, not only because of the competition and the skills we build up, but because of the friends and associations that go along with it.

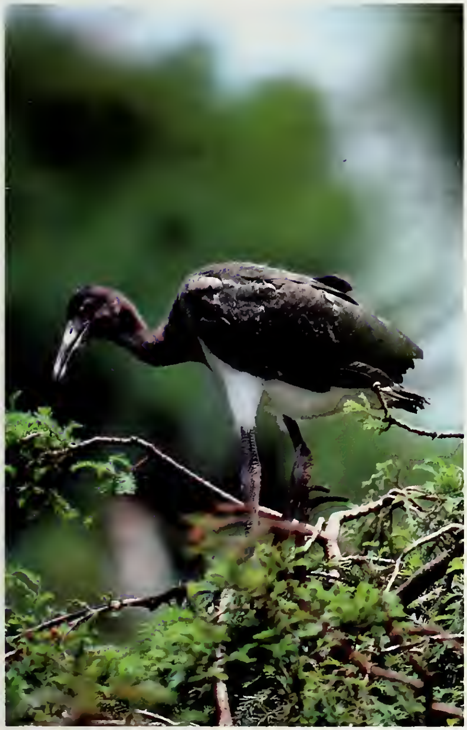
It is more than that. Competitive shooters look upon firearms safety almost as religion, and there is absolutely no tolerance for any unsafe act. It would be good for every student taking a hunter safety course to attend any kind of competitive shoot. Watching the way the real experts handle guns drives the point home.

There is another important benefit that we all get from competitive shooting. One thing that experience and history have proven is that many wildlife species must be harvested regularly if they are to thrive to their potential. Marksmanship skills are a requisite for efficient hunting. Clean and humane kills require accurate bullet placement, and the fact remains that the hunter who shoots often shoots best.

Four targets are chicken, pig, turkey and ram.

Here an Ibis, Th

re an Ibis . . .



By Bob Sheldon
Photography by Mark Saltz

The adult white ibis has long red legs, a red mask of a face, and a red tip to its long, slender bill, which curves downward as though it got bent on something.

THE STATELY white ibis finds the mild winters and spongy terrain of Louisiana much to its liking.

Though classed as migratory and apt to range the southern coastline, the ibis makes a permanent home in many areas of the state. It prefers places where tracts of cypress and tupelo merge into marshland with trees, shrubs and islands.

The adult white ibis has long red legs, a red mask of a face, and a red tip to its long, slender bill, which curves downward as though it got bent on something. Its wings are tipped with black and when flying, unlike the herron or the egret, it keeps its neck fully outstretched.

Dark-feathered species sometimes sighted in Louisiana include the glossy ibis and the white-faced ibis. The glossy ibis is native to Mediterranean and Asiatic regions and was regarded as sacred by the ancient Egyptians.

When breeding, the white ibis doesn't mind sharing a rookery with other types of birds. It builds a nest of sticks and grasses on a tree branch or shrub. The first nesting cycle begins in April and produces three or four eggs, incubated by both parents for 21 days. The young can fly and feed themselves at about five weeks.

At that point, early in June, there is a second nesting cycle, apparently for parents who lost their nest, their eggs or their young the first time around.

Shallow waters provide this wading bird with most of its food. Ibises especially like crustaceans, but they're not awfully finicky—they also go for cutworms, insect larvae, grasshoppers, fish, frogs, snakes and earthworms.

Ibises generally inhabit rookeries that are not easily accessible to humans. If you do come upon some, it's all right to observe and photograph them, but otherwise they should be left strictly alone. Don't go picking up their eggs or babies because you think the parents have abandoned them—they haven't. And remember that ibises are protected by both state and federal law. Hunting them at any time is a felony.

Louisiana's Fascinatin

Written and photographed by
Alan J. Rebertus and Nancy G. Barker

Modern forest management practices are simply not compatible with the survival of Louisiana's pitcher plant bogs. Unless something is done soon, we may lose a fascinating part of our "Sportsman's Paradise."

LIKE SOMETHING out of a low-budget horror movie, the hapless victim slipped deeper and deeper into the maw of the flesh-eating plant. The graceful, nectar-filled hood that had been so attractive was really a disguised death trap. It was covered with downward-sloping hairs, arranged so that every movement of the struggling victim forced him deeper into the recesses of the plant. Then the hairs ended abruptly, and the victim was dumped onto a slick surface. It was only a short, quick slide into the deadly soup below.

The drama described above does not take place in some distant and exotic rain forest, but is repeated many times each day in Louisiana's often overlooked and rapidly disappearing pitcher plant bogs. A surprising number of people are completely unaware that the bogs exist in Louisiana, a fact that magnifies the critical plight of their survival. The word "bog" all too often connotes a damp, ugly wasteland—a swamp, mire or morass. Other, equally descriptive words depict a friendlier place: heath, muskeg, savannah. What are Louisiana's bogs really like?

There are two types of bogs in Louisiana. The flatwood bogs are confined primarily to Tangipahoa, St. Tammany and Washington parishes in southeast Louisiana and a few areas in the southwestern portion of the state. The richest bogs are to be found in small, savannah-like openings that occur in flatwood forests dominated by slash and loblolly pine.

Bogs

This sundew's (*Drosera*) tentacles have captured several small insects.

Hillside bogs are found directly on the slopes bordering the headwaters of creeks and bayous throughout most of western Louisiana. They are particularly abundant in Vernon and Natchitoches parishes. They are formed when water soaks through the porous surface soils near the hilltops, but cannot penetrate heavy clay and rock layers beneath the surface. The water then moves down the hillside and is eventually forced to seep back to the surface. These seepage zones create open, boggy strips that follow the contour of the hills for distances ranging from 100 feet to half a mile. The lushest hillside bogs are steep and carpeted with squishy sphagnum moss. Other hillside bogs are almost flat and are usually not as rich in vegetation.

Most of Louisiana's bogs are waterlogged throughout much of the year. The soil is commonly low in nutrients such as nitrogen, phosphorous and calcium, and is usually strongly acidic. There is no peat accumulation and the surface is surprisingly solid, quite unlike the quaking muskeg of the northern United States and Canada. The firmness of the surface is quite deceptive, however, and a wheeled vehicle venturing into such a bog can quickly become hopelessly mired.

Carnivorous plants are the most conspicuous in bogs, and this fact is apparently one of nature's many balancing acts. Carnivory is really advantageous in soils of low fertility. The remains of captured insects may supplement the naturally low levels of nitrogen and minerals in the soil.

Louisiana's carnivorous plants include the pitcher plants, sundews, bladderworts and butterworts. Their beauty is as alluring as their facinating ability to capture and devour many types of insects.

The pitcher plants include the yellow pitcher plant and the parrots pitcher plant. The yellow pitcher plants are abundant in bogs throughout the state. Their huge lemon-colored blossoms are among the earliest of the spring wildflowers. While the rest of the bog is still a dull gray-brown, the burst of bold color from the yellow pitchers enlivens the sleeping landscape. The funnel-like pitchers are actually modified leaves. They emerge in late April and soon grow into towering and impressive traps that dominate the entire bog. Most are 1½ to two feet tall, but they can exceed three feet in height in rich hillside bogs. Red vein patterns and abundant nectar glands attract insects, and delicate hairs on the hood all point downward. At the end of the hairs, a superslick surface drops the hapless victim into the "digestive" soup at the funnel's base. Bacteria probably do most of the decomposition work, but the plants may also secrete their own enzymes.

Parrots pitcher plants are uncommon in southeast Louisiana and apparently absent in the western part of the state. Their deep crimson flowers emerge in late April. The pitchers are six to nine inches long and grow in spreading clumps. The top of the pitcher resembles the head of a macaw parrot with a small opening at the base of the "bill." Insects are attracted to a brilliantly colored pattern of magenta veins and white splotches. Inside the pitcher, the white splotches appear translucent and create the illusion of many windows. An insect drawn to the small cavern finds there are no footholds inside, and, as in a "house of mirrors," there is no easy way out for the confused victim.

The tiny sundews can be found scattered in mudflats or hiding in pillows of sphagnum moss. They are the most abundant carnivorous plants in the bog but often go unnoticed and end up flattened by a careless foot. All species of sundew in Louisiana have rose-colored whorls of spatulate leaves. The leaves are a living "flypaper" covered with tiny tentacles, each topped with a small drop of glistening, sticky mucilage called "dew." Any insect landing on the leaf is stuck tight, and nearby tentacles actually bend over to secure the prey. Then the tentacles begin secreting their strong enzymes and absorb the prey.

Butterworts are another type of specialized natural flypaper. The thick, triangular leaves form a basal rosette and are equipped with glands that secrete both a sticky mucilage and enzymes. The leaves inroll slightly around captured insects to aid in the decomposition process and absorption. The yellow butterwort has bright yellow, highly ornate flowers. The pale butterwort is especially abundant in western Louisiana and has a smaller pale blue or white blossom.

Bladderworts are adapted to many habitats, including bogs. The bladders of this small plant are air-filled spheres only a few millimeters long. Each bladder is equipped with a "door" sealed with a jelly-like "doorstop" and surrounded by trigger hairs. When a small aquatic organism bumps into the trigger hairs, the door seal is broken and water rushes in, sweeping the intended prey along. Back pressure then closes the door, sealing it in the jelly and trapping the prey.

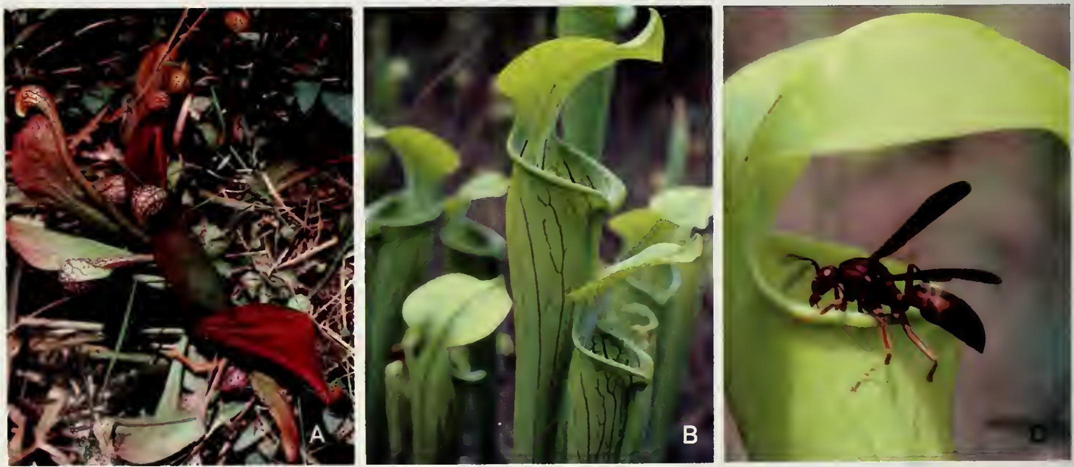
Most bladderworts have yellow flowers that resemble those of butterworts, but there is a rare species to be found in bog pools in St. Tammany Parish that sports purple flowers.

But there is much more to Louisiana's bogs than exotic carnivorous plants. Springtime brings a profusion of blooming wild orchids to the bogs. Nowhere, except in the Tropics, can you find as many different species. The rose pogonia is most abundant. There are usually a few in every bog and some hillside bogs are completely dappled in pastel pink by early May. Perhaps the most beautiful are the grass pinks, or calopogons. There are also several types of rein orchids and ladies tresses. Rein orchids have terminal clusters of orange or white flowers, while ladies tresses have white blossoms spiraling up a twisted stem. Finally, there are the spreading pogonias of the bogs in southeast Louisiana.

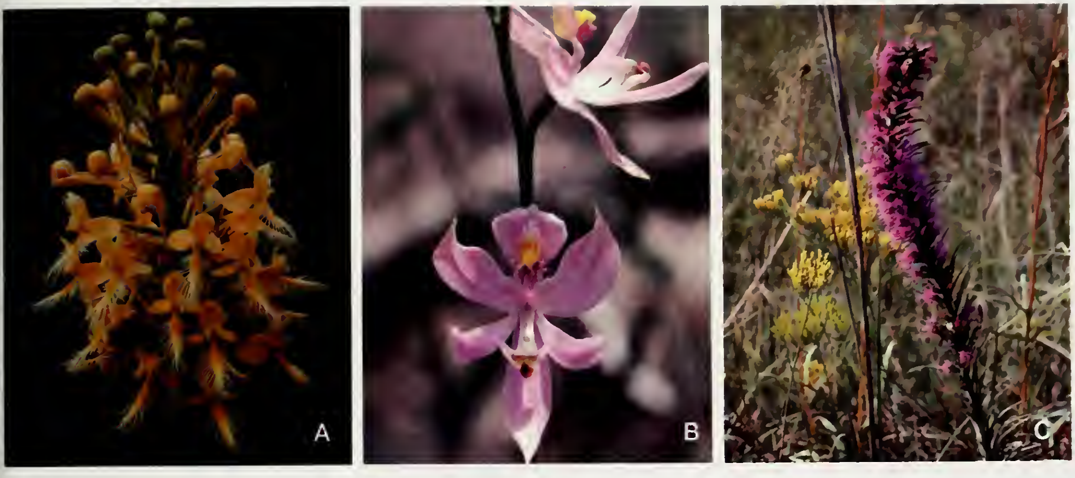
Bog lilies rival orchids in sheer beauty. In spring and summer, the bogs explode with yellow stargrass, colic root, camass and false asphodel. In late summer, the last lily to bloom is the huge scarlet Catesby lily, which is among the rarest and most beautiful of Louisiana's wildflowers. The lucky naturalist will sometimes find the Catesby blooming in remote bogs in St. Tammany Parish.

Many bog plants have leaves that resemble those of lilies. While the flowers are not spectacular, some of these plants are quite peculiar. The stems of yellow-eyed grass have brown knobs at the tips which bear small yellow flowers. Pipeworts have a buttonlike cluster of tiny white flowers and bracts at the end of a solitary stem. The inconspicuous yellow flowers of the redroot are partially clothed in fuzzy gray bracts, while the plant gets its name from the bright red roots which contain a liquid that is often used to dye wool.

By late summer and early fall a definite change occurs in the bog. It becomes dry and prairielike. In fact, many of the grasses and fall flowers of the bog are also found in true prairies. The bluestem grasses become tawny brown, but sunflowers, goldenrods, coreopsis, golden asters and rose gentians spread flaming color over the landscape. Contrasting with the gold and brown is the purple added by liatris, or blazing stars. The kaleidoscope of color is complete with the myriad butterflies attracted to the bog flora. The pitcher plants slowly change from emerald green to peach, orange and magenta, eventually drying and turning brown as they die back for another year.



(A) A clump of parrots pitcher plants (*Sarracenia psittacina*); (B) yellow pitcher plants (*Sarracenia alata*); (C) potential victim investigates nectaries at rim of pitcher plant.



John Hovanesian

(A) The beauty of the yellow fringed orchid (*Habenaria ciliaris*) highlights the bog; (B) *Calopogon pallidus* or grass pink is one of three species of Calopogon in the bogs; (C) Liatris or blazing star in the fall (*Liatris pycnostachya*).

Bogs also provide valuable wildlife habitat. Deer browse on many of the plants growing in and around the bogs. Quail use the brushy edges for cover. Birdwatchers search bogs for prairie warblers, sparrows and other species. At one time, sandhill cranes are believed to have nested in southeast Louisiana, but now the remaining bogs are too small and too dry.

Oddly enough, the greatest single threat to the survival of the bogs in Louisiana is modern forest management in the form of efficient fire protection. Frequent fires—burnoffs—are essential to a rich and healthy bog. The fire removes dead grass and plants, increases or replenishes certain nutrients, and stimulates early spring growth by exposing the soil to the sunlight.

Following a fire, the number and general vigor of the pitcher plants are greatly increased. Orchids and lilies also exhibit marked improvement in the wake of a fire. Finally, fire restricts the spread of woody plants. In the absence of fires, dense grass and shrubs such as gallberry and way myrtle encroach upon the bog, competing with the pitcher plants and orchids. Encroaching broadleaf species will eventually shade out and smother the plants of the bogs. Pines produce less shade than broadleaf varieties, and the shed needles help to control the encroaching broadleafs, but the final result is the same.

Overgrown bogs are increasingly evident in areas of growing human activity and fire control in southeast Louisiana. Large, rich bogs remain only on tracts of land owned by private interests or timber companies where fire is used to control understory growth.

Fire prevention is only one of the problems threatening Louisiana's bogs. All flatwood bogs in southeast Louisiana are privately owned and threatened with destruction from drainage for agricultural conversion or development. Numerous bogs have been drained to provide grazing areas for livestock or to improve conditions for the production of slash pine, and housing developments near Abita Springs threaten some of the most extensive and prolific bogs in the state.

Although the hillside bogs are fairly secure for the moment because many of them are on public lands, the future of the flatwood bogs of southeast Louisiana is bleak. Remnants will probably survive for some time, but will the orchids and pitcher plants survive or be choked out by gallbery? Hopefully, we can preserve some large bog areas and maintain a rich flora. Ideally, we could include our large, wet bogs in "protected wetlands" status.

An alternate approach might be to acquire some of the larger bogs for preservation and management by the state or a conservation group such as the Nature Conservancy. Rare flora could be maintained and encouraged, water levels could be controlled and regular burnoffs could be implemented. We already know that some bog plants need badly to be placed on the "threatened" or "endangered" list.

Louisiana bogs have long been overlooked. Like our coastal marshes and bottomland hardwoods, our bogs are disappearing at an alarming rate. But where the marshes and the bottomland hardwoods have a growing list of champions fighting for their survival, the bogs are in danger of passing from the scene almost totally unnoticed.

The treasure of seasonal bouquets and unusual life forms merits recognition and preservation. Otherwise, the parrots pitcher plant, pink coreopsis and other endangered species may well vanish from Louisiana forever.

Natural Causes of FISH KILLS

Fish have adapted to an amazing variety of extreme conditions. Yet they are highly vulnerable to many changes in their environment.

By Richard Bejarano

PERHAPS ONE of the saddest sights to the conservationist is the waste created by a fish kill. Whatever the number of fish involved, and at times it can be immense, the loss of a precious resource is very alarming.

As a professional biologist and fisheries resource manager with the Louisiana Department of Wildlife and Fisheries, I am frequently called to the scene of a fish kill to investigate its causes. Where these causes are man-made, it is possible of course to institute corrective measures.

It is necessary to understand that most fish kills are natural occurrences, brought about by the intricate workings of nature. As such, they occur as a result of complex phenomena so as to be virtually unpredictable. Nevertheless, our present knowledge permits the taking of preventive steps, as in the case of managed fisheries habitats.

Fish have been around for the last 500 million years, and the 20,000 species living in the world today show an amazing degree of adaptivity. Some live in frigid Antarctic waters while others survive in temperatures as high as 104° Fahrenheit. They inhabit torrential freshwater streams and water even saltier than the seas. A few manage to exist at an altitude of 12,500 feet in a mountain lake or as deep as 35,000 feet in the ocean where the pressure is 16,000 pounds per square inch.

Yet fish are highly vulnerable to changes in these surroundings.

In Louisiana, most fish kills in inland waters take place during the hot summer months. The No. 1 cause is oxygen depletion. Other factors include aquatic plant growth, weather conditions, the chemical composition of water and the way it is layered, disease, and competition from other life forms. Always, the causes are interrelated.

Oxygen is produced in the water by plants although some is diffused into the water from such surface sources as waves, splashing and raindrops. Without sufficient oxygen a fish will quickly die.

Fish are considered cold-blooded, which means that their blood and bodies will take on about the same temperature as the surrounding water. High temperatures stimulate the growth and development of fish by increasing the metabolic rate and consequently stepping up the intake of food. Low temperatures have just the opposite effect.

For that reason, a largemouth bass in Louisiana may grow from egg to maturity and even spawn in only one year while it takes the same species four to five years in Canada. A bluegill will consume food equal to about 35 percent of its body weight weekly when the temperature is 75° F but will eat less than 1 percent of its body weight when the temperature falls to 36° F. Because of its effects, rapid warming and cooling kills off many susceptible fish.

Cold water holds more oxygen in solution than warm water. Ironically, as the water warms up and its oxygen content drops, a fish needs more and more oxygen for metabolism, and eventually the fish suffocates. This is the major natural cause of fish kills in Louisiana. Shallow marsh waters get as hot as 100° F in some places while temperatures as high as 90° F in Lake Pontchartrain are not uncommon.

Elements affecting water temperature are so numerous that any two bodies of water are likely to differ in this respect, even if they are located close together. A bayou that is shallow, muddy and with little tree cover will have a higher temperature than a nearby bayou that is deep, clear and tree-shaded. As a result, fish kills may occur every summer in one and not the other.

The water hyacinth, introduced from Latin America to New Orleans at the International Cotton Exposition exactly 100 years ago, has become a deadly enemy of Louisiana's fish population. Hyacinths, which are capable of self-pollination, therefore have an incredible reproductive potential—a single plant can produce 65,000 descendants in eight months!

The extensive growth of water hyacinth lowers water levels significantly since the plant's leaves consist of 95 percent water. Loss of water from the plants in the form of vapor increases dramatically in the hot summer months. This increasingly drains the body of water at a time when the hyacinth is reproducing and growing very fast.

Lower water levels mean hotter water and consequently less oxygen. More hyacinths mean less water circulation and therefore less oxygen. The lowered water levels allow alligator weed, cattails, willow trees and other plants to grow quicker, accelerating the drying up and eventual takeover by vegetation.

A thick floating mat of water hyacinth may also kill fish. As it grows, it blocks a progressively larger area of water from sunlight. Without light, plants die, and without plants, oxygen in the water is soon used up. Although the fish usually die of suffocation, starvation is also a threat inasmuch as plants—including algae and the very minute, drifting organisms known as phytoplankton—form the base of the food chain.

Highly muddy or murky water may be detrimental to fish life. Silt and fine clay particles can coat delicate gill filaments and impair breathing, and this type of water restricts the amount of sunlight reaching oxygen-producing plants.

This may therefore kill off the most oxygen-sensitive species like the gizzard shad and menhaden. These fish are very active and as a result consume much more oxygen than a slow-moving bottom fish. Menhaden, for example, have a gill area five times larger than a toadfish.

A few cloudy days may be enough to set off a kill due to oxygen depletion. If for example there is a large phytoplankton growth in the water due to nutrients, previous high water temperatures and sunshine, oxygen production will drop significantly during the cloudy days as the organisms use it to live.

At night, no oxygen is produced at all by plants. If the waters are not aerated by circulation, waves or wind, the total oxygen demand of aquatic animals, plants and bacteria may be more than the water contains. A fish kill can result.

Fish kills are sometimes caused by water layering. In spring the top water layer is warmed up and does not mix with the cooler, denser bottom layer. The top layer is supplied with sufficient oxygen through plant output, wind and wave action. At the bottom, however, oxygen is used up by aquatic animals and by bacteria decomposing dead plants that sink from the surface layer.

Wildlife and Fisheries biologist makes on-the-scene investigation of reported fish kill.

The absence of oxygen activates bacteria which can live only without oxygen. They take over the decomposition process, by-products of which contain toxic gases. These gases rise to the surface as weather conditions bring about shifts in the layering of the water.

Waters that are too acid or too alkaline kill fish. Tannic acid is released by decomposing plants; carbonic acid is produced when carbon dioxide is present. For some species, water over calcium carbonate deposits may prove too alkaline.

Fluctuating water levels may also turn into a death trap. Mullets have entered marsh areas on a very high tide and become stranded, for example, while fish eggs have been exposed and destroyed by receding waters.

Upwelling is responsible for fish kills in the vicinity of Grand Isle. As freshwater coming out of the Mississippi River at Southwest Pass mixes with Gulf saltwater, some of the organic material in the freshwater sinks to the bottom toward the west. The deep water of this area has little if any oxygen, because of bacterial decomposition of the organic matter and lack of oxygen production due to depth and murkiness. Northerly winds blow surface water away from the coastline and expose this low-oxygen water, which then rises. Fish are caught in it and suffocate.

In a season with little rainfall, freshwater fishes may be killed as high-salinity water from the sea invades a freshwater marsh, lake, bayou or river. That phenomenom occurs in Lake Pontchartrain. Southeasterly winds and high tides push seawater into the lake through the Rigolets, Chef Menteur Pass and the Industrial Canal. Some crab and fish kills in the lake have been traced to high-salinity and low-oxygen waters lying at the lower depths. Since saltwater is heavier than freshwater, it sinks.

Saltwater has intruded up the Mississippi as far north as the Huey P. Long Bridge—more than 110 miles from the river's mouth.

In a season with much rain, freshwater flowing into marine environments lowers salinity and kills saltwater fish that can't escape in time. A flash flood can do it.

Fish are killed by many species of one-celled animals, or protozoans. A marine species is mainly responsible for causing the so-called red tide in Louisiana—it multiplies so fast that it reddens the water with its sheer numbers. Other protozoans are parasitic. One such species caused the death of many speckled trout, redfish, croaker and drum in Lake Pontchartrain in 1978.

Hundreds of species of fungi, bacteria, worms and crustaceans attack fish. Some kill their victims while others weaken them, making them easy prey for predators or otherwise unfit to cope with their environment.

Of course, both the growth and survival of fishes depend on an abundance of food. The right vitamins, minerals and amino acids must be present for a fish to maintain health. If fish don't get enough of the vitamin niacin, for instance, they will get sunburned! Most of the organic and degenerative disorders that affect man also plague fish—cancer, rickets, blindness, liver disease—and they are subject to epidemics.

Whenever a fish kill is sighted on a public body of water in Louisiana, a Wildlife and Fisheries biologist is sent to investigate. He analyzes the water, particularly for temperature and salinity, and collects other data and observations for a detailed report. If the cause of the fish kill is determined to be man-made—say, a sewage overflow or contamination by agricultural chemicals—the matter is referred to the Louisiana Department of Environmental Quality for action. Natural causes are studied for means of preventing a recurrence.

Many of the natural causes of fish kills can be present in a given area at one time but in varying degrees. To name a few, the levels of oxygen depletion, extreme temperatures and poisonous substances might not be lethal in themselves but constitute an environmental time bomb when all are put together. The biologist calls this the synergistic effect, and he is always on the alert for it.

The story's author, Richard Bejarano, obtains water sample from lake (bottom); and runs on-the-spot water check (top).

ROLL YOUR OWN … Reloading for Smoothbores

By Maurice N. Cockerham
Photography by Mark Saltz

Waterfowlers, upland game hunters and many deer hunters can discover an enjoyable hobby and improve their shooting skills by reloading their own shotgun shells. It's really simple, safe and sensible.

IN THE March–April issue we discussed the equipment and procedures for reloading rifle and pistol cartridges, and the many benefits of do-it-yourself ammunition. Those same benefits apply to the shootist who works extensively with the scattergun. The retail price of shotgun shells, particularly the so-called "high velocity" variety, has climbed considerably over the past few years. Anyone who runs through more than a couple of boxes a season is a prime candidate for an inexpensive shotgun shell reloading kit.

Right up front we need to understand that none of the equipment or components used in reloading metallic cartridges for rifles and pistols can be interchanged with shotgun components. The basic procedures are the same but the components, dies and presses are all different.

Once again, the very first requirement for successful reloading is one or more good reloading manuals available from any dealer who sells reloading components. Even if you have experience with reloading metallic cartridges, read your new shotshell manual thoroughly. There are a few differences between the two jobs, and it's much better to be surprised while you are reading rather than while you are shooting.

The components list for shotshells is similar to the list for cartridges. You will need case, primer, gunpowder and a charge of shot. In addition, you will need another ingredient called a "wad." This little device simply separates the gunpowder from the shot. In years past, wads were simple cardboard discs, but in modern shotshells they are usually carefully engineered plastic cups that serve several purposes. They not only separate powder and shot, and provide a solid surface for the rapidly burning gunpowder to push against, but also contain the shot charge until it leaves the muzzle, thereby preventing the possible deformation of the individual pellets. When the cup and shot exit the gun barrel, the fingers of the wad flare out and drop away from the shot charge. The old-style cardboard discs were wont to fly into the shot charge, spreading it prematurely and ruining the pattern.

Shotshell cases, too, have come a long way from the old waxed paper shells of bygone days. Most factory loads and most empty cases intended for the reloading market are now made of durable, waterproof plastic. The ends of the loaded shells are closed with a carefully folded "star-crimp" of either six or eight points. (More on that later.)

At this point let's lay to rest one of the popular but unfounded myths about shotgun shells. We have had with us, for the longest, two types of shells . . . high brass and low brass. The designation "high brass" has commonly been used to refer to shells utilizing heavier charges of powder (and usually heavier loads of shot), while the "low brass" shells were lightly charged loads. While the definitions may be only generally true with factory loads, they are totally inapplicable in reloading. All "recipes," from the lightest field loads to the heaviest magnums, can safely be loaded in the modern plastic "low brass" shell. Containing the forces of the rapidly expanding gases created by the exploding gunpowder is a function of the chamber of the firearm, not the shell case. In addition, the low brass cases are considerably easier to resize after firing.

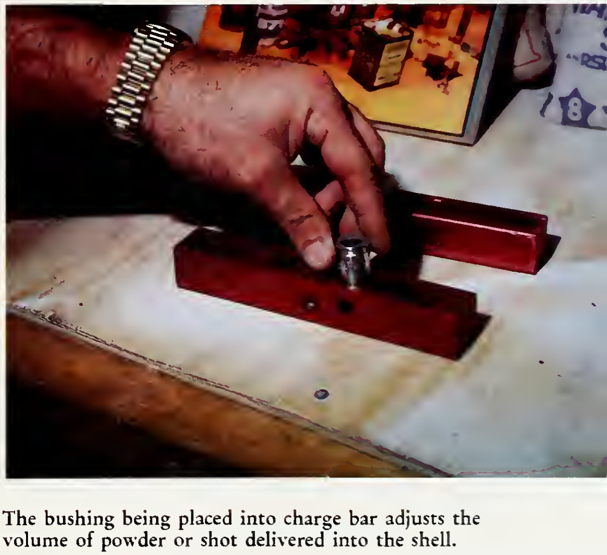
As with metallic cartridge reloading, there is a bewildering variety of equipment available to aid in restuffing shotgun shells. The maze can be frustrating for the novice but, once again, a careful consideration of your actual needs is the proper starting point. The shootist who spends hours and hours at trap or skeet will, in all likelihood, need the speed and volume available in the more costly "progressive" reloaders. The volume of reloading to be done will rapidly justify the added cost of the machine. On the other hand, the chap who drifts through a few boxes a year and wants to reload for the fun of it as much as for the economics might well be satisfied with one of the simple and inexpensive manual kits. Most of us, of course, fall somewhere between these two points and our needs are best met with the standard so-called "semi-automatic" press. This handles one shell at the time and the operator moves the shell from station to station to run it through each die at the proper time.

The press must be equipped with the proper dies for the particular shell you are reloading. If you are shooting 12 gauge shells, you must have 12 gauge dies, but it is a little more involved than that. If you are shooting 2¾ inch shells you can't load them in dies intended for 3 inch shells. Also, the type of crimp on your used empty cases is an important consideration. The cases may have a 6 point or an 8 point "star," and the crimp starter on your press must match.

Pay particular attention to your selection of a new press. Some come from the factory with dies installed for a particular shell, say 20 gauge-3 inch-6 point crimp. Some can be adjusted to handle 2¾ inch shells as well. Some presses have interchangeable dies to enable the machine to be used for more than one gauge. If you sometimes shoot 20 gauge as well as 12 gauge guns, and sometimes use 3 inch shells as well as 2¾ inchers, be sure the press you select is versatile enough to handle all those loadings.

The requirements for safety and cleanliness in handling the various components for shotshell reloading are identical to those covered in our previous article on reloading metallic cartridges. Many shotshell reloaders forgo the use of a lubricant on the brass heads of shotgun shells. If you do lubricate (a good idea, particularly with high brass shells), be sure to avoid contaminating either your primers or your powder with the lubricant. The best idea is to lubricate the head lightly immediately before running the case into the sizing die, and then wipe it clean when you remove it from the die. "Resizing" shotshells applies only to the brass heads of the shell case and, in most presses, the "resizer" is built into one of the other procedures.

In the following description of the loading procedure, we will be dealing with one particular brand and model of press.



The bushing being placed into charge bar adjusts the volume of powder or shot delivered into the shell.

They all operate in a similar manner, but be quite sure you read and follow the directions with your machine.

First, examine your empty cases or "hulls" carefully. Discard any that have even the slightest cracks or splits in the brass heads or the plastic tubes. Be sure they are clean and dry, and that the original crimps match your crimp starter.

The first station on our selected press deprimes the empty case. Here we note the first difference between our shotshell press and the press used for metallic cartridges. On this one, pulling down on the operating lever does not move the empty case up into the die. Rather, it moves the die down over the case. On our particular press (a MEC 600, by the way) the depriming station also resizes the brass head of the case.

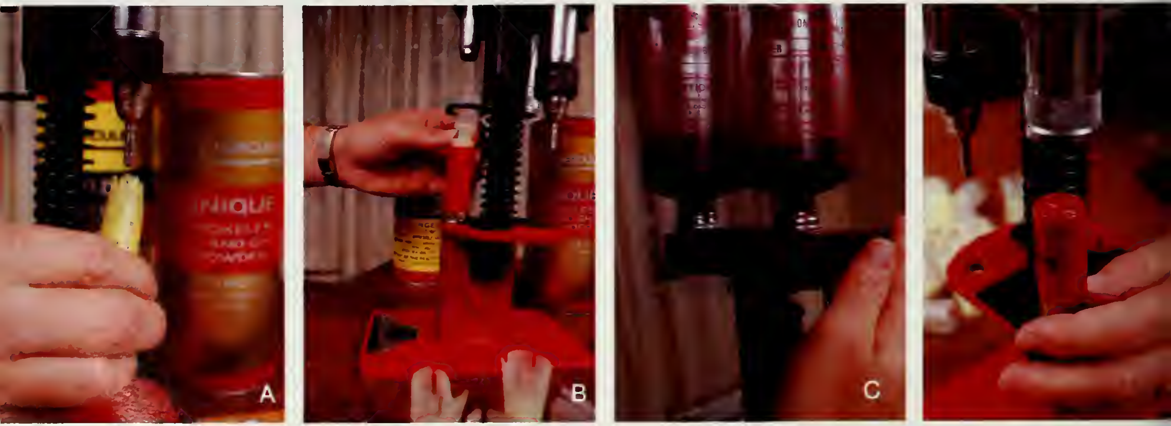
The case is now moved to the second station. A new primer is centered under the case and the die forces the case head down over the primer until it is firmly seated.

The next step is to charge the case with the proper amount of powder. All reloading data will list exact combinations of components and it is not wise to alter the recipe in any way. Recheck to make sure you are using the right brand and type of powder at this point. Our press is equipped with a "charge bar," which is simply a metal bar with a carefully drilled hole. That hole will contain a specified volume of powder and the volume can be altered by inserting a special bushing into the hole. With the empty case in the station, the bar is smoothly pushed into the charge position. This cuts off the flow of powder into the bar and dumps the preset volume of powder into the case.

The alternatives to using the charge bar, which equates to the powder measure used in metallic reloading, are either hand dipping or weighing each charge individually. The advantages and disadvantages of each method were covered in our earlier article and I still prefer weighing each charge on a good powder scale. It is necessary to have the powder scale to check and double check the uniformity of the charges being dropped by your press, and I simply prefer the peace of mind I get when I KNOW that every charge is accurate. Of course, I'm not trying to mass produce 400 shells an hour and the few extra seconds needed to weigh a charge are not critical to me. Safety is.

At this point, the wad or cup or wad column, or whatever you wish to call it, must be inserted into the case and pressed downward against the powder charge. Once again, recheck your components. Particular wads are specified for each load and arbitrary changes can really spoil your day further down the line.

Now we are ready to add our charge of shot. (DO NOT try to use the new steel shot, and spend the extra few cents for good quality shot.) When we moved our charge bar over to drop the powder into the empty case, a second hole in the bar moved under the shot container and filled with the correct weight of shot. With the case on station, we now move the bar back again and the shot falls into the case. This works quite well with shot sizes down to about #6. Larger shot sometimes tend to jam in the charge bar openings, resulting in difficult operation and deformed or sheared pellets. Larger sizes



(A) Decapping and sizing is the first step in reloading; (B) after new primer and powder are added, wad is inserted to separate powder and shot charge; (C) a simple movement of the charge bar delivers the correct amount of shot; (D) crimping the shell seals the load and completes the process.

Crimps are either six point or eight point (left); reloading your own shotshells is one way to get more out of your smoothbore (center); patterns can be tightened or spread by changing shotshell components (right).

can be measured out with a dipper. Like powder charges, the ultimate accuracy is achieved by weighing each shot charge on your scale.

Now we are ready to literally cap things off. First, the open end of the case goes under a crimp starter, which makes a partial fold in the case mouth that matches the original fold lines. At this point, the case should be moved right along to the final crimp. Hesitating too long will result in the "memory" of the pliable plastic slowly unfolding the crimp and reopening the case.

A good final crimp looks like a factory load. It is smooth and even, with just a slight indentation at the center of the closure. Improper crimping is a sure indication of a component problem, and firing such shells is usually known as playing shotgun roulette. If the crimp indents too much, with uneven edges, you have used the wrong wad, too little shot, too little powder, or a combination of the three. On the other hand, if the crimp does not seal at the center of the "star," you can bet that the wad is too thick, the powder charge is too heavy, or you have too much shot. In either case, discard that shell and start all over again.

That is really all there is to reloading your own shotshells. Initial cost, depending upon the press you prefer, can be even less than the press and dies for your first round of metallic cartridge reloading. About $20 will set you up with a simple press for a single gauge. From there you can go as far as your needs, desires and wallet will allow. With a bit of experience, you can also move onward to added versatility. Instead of buying a new barrel for that old smokepole, you can actually open or close the pattern of your favorite scattergun simply by using certain handloading tricks. If you like to go after deer or wild hogs, you can stuff really super slug loads.

Over and above all that . . . above even the economic impact of reloading (and that can be a considerable lump of change in your pocket) . . . there is the fun and satisfaction you get from doing it yourself. You can believe that there is a very real surge of pride when you have a successful day at the range, in the woods, or in the marsh with ammunition that performs just like you want it to, because you rolled your own.

Conservationotes

It's the Year of the Ocean

The world is in effect an ocean and "the homelands of mankind are but islands in the sea."

So say both a congressional resolution and a proclamation by President Reagan designating 1984-85 as the Year of the Ocean.

The importance of the ocean and its resources to human life is virtually impossible to overstate. But its impact here in the Southeast is particularly evident.

Paul D. Fulham of the National Marine Fisheries Service notes that the area's commercial fishing industry last year landed more than 2.5 billion pounds of fish with a value of $600 million. This represents 43 percent of total U.S. landings and 32 percent of the value of U.S.-produced fishery products.

According to Fulham, regional coordinator for the Year of the Ocean, nearly nine million fishermen made more than 48 million sport fishing trips in the Southeast in 1980 and caught 240 million fish. These anglers contributed $3.3 billion to the region's economy through direct and indirect expenditures. The Southeast accounted for more than 55 percent of all marine recreational fishing retail sales in the nation.

The Southeast contains more than 60 percent of the prime estaurine habitat in the 48 continental states. More than 90 percent of the commercial fishing yield is estaurine-dependent and more than 70 percent of recreationally caught fish is estaurine-dependent.

The Year of the Ocean observance began March 10, the first anniversary of President Reagan's declaration of the 200 nautical miles immediately off our shores as an Exclusive Economic Zone. It is designed to make Americans more fully aware of their bond with the ocean, and to kindle new interest in exploration, research, development, use and enjoyment of the sea.

Trappers Convene Aug. 11-12

A wide range of trapping activities will be aired when the Louisiana Trappers and Alligator Hunters Association convenes Aug. 11-12 at the Municipal Auditorium in Morgan City.

Bob Watson, president of the association, said the program includes trap-setting demonstrations and contests, skinning and fur-handling demonstrations, and input by representatives of the Louisiana Wildlife Federation, trapping supply dealers and trap manufacturers.

"Our organization was founded to preserve our right to trap and use our renewable fur resource wisely," Watson said. "We have approximately 400 members statewide."

Watson, of Franklinton, said the convention is free to anyone who wants to attend. His phone number is 504/839-3271. Convention chairman is Kermit Coulon of Houma, 504/369-7907.

Fishing Map Available

A new map for recreational fishermen interested in the Grand Isle-Lower Mississippi River area is now available from Minerals Management Service in Metairie.

The maps depict the location of parks, wildlife areas, historical sites, beaches, marinas, Coast Guard stations, navigation channels, jetties, offshore oil and gas rigs and various other coastal and offshore features which may be of interest to recreational boaters and fishermen.

The maps also list services available through the private and public marinas in the area, plus safety and general fishing information.

Copies of the Marine Recreational Fishing Map are available at a cost of $2.50 each. Simply request "Open File Report 83-01" and make your check payable to Minerals Management Service. The address is:

Records Management Section
(OPS-4)
Gulf of Mexico Region
Minerals Management Service
P.O. Box 7944
Metairie, La. 70010

Duck Stamp Marks 50 Years

1984 marks the 50th anniversary of the Federal Duck Stamp program, operated by the U.S. Department of the Interior.

With wetlands in America currently disappearing at the rate of a half a million acres each year, more and more Americans are realizing that this ongoing program does far more than simply benefit waterfowlers. As a result, the Department of the Interior is trying to focus more attention on the success of the Duck Stamp program. More than 3.5 million acres of wetlands have been added to the National Wildlife Refuge System with purchases made with the $285 million generated by past sales of Federal Duck Stamps to sportsmen.

In this anniversary year, public events and commemorative ceremonies are being planned to honor the Duck Stamp and Congress has approved a resolution designating July 1-8 as National Duck Stamp Week. A special commemorative postage stamp is being issued by the U.S. Postal Service and, as always, the annual Duck Stamp art competition will highlight the first week of November.

The art competition for the design of each year's Federal Duck Stamp is open to the public. Details on competition regulations and entries and deadlines are available from:

United States Department
of the Interior
Office of the Secretary
Washington, D.C. 20240

Mark Saltz

Pie's Potpourri

By Marian "Pie" Pendley

Crabmeat and Artichoke Casserole

3 tablespoons butter
3 tablespoons flour
2 cups cream
½ cup sherry
1 teaspoon salt
⅛ teaspoon pepper
⅓ cup Parmesan cheese
Dash of Tabasco
4 hard cooked eggs, chopped
1 pound can artichoke bottoms
2 cups crabmeat
Seasoned bread crumbs

Make white sauce by melting butter in pan. Stir in flour and gradually add cream and sherry, stirring constantly. Season with salt, pepper, cheese and Tabasco. Gently fold in eggs, artichoke bottoms and crabmeat. Pour into 1½ quart casserole and top with bread crumbs. Bake at 350° for 30 minutes. Serves 6–8.

Broiled Stuffed Flounder

1 stick butter
1 medium onion, minced
¼ cup green onion
2 stalks celery, finely chopped
1 cup raw shrimp, chopped
1 small can mushrooms
¼ pound crabmeat (optional)
2 tablespoons parsley, minced
1 tablespoon Worcestershire sauce
¼ cup cream
Breadcrumbs
Salt and pepper
3 ounces white wine, plus ¼ ounce for basting
4 flounders, 2 to 2¼ pounds each
2 tablespoons oil

Saute the finely chopped onion and green onions in butter until soft; add celery and saute 2 or 3 minutes longer. Add shrimp and mushrooms and saute until the shrimp are pink. Add crabmeat, parsley, Worcestershire, cream, and enough breadcrumbs to hold the dressing together. Season to taste.

Make a slit in the flounder. Stuff this pocket with dressing and close with the aid of small skewers.

Heat 2 tablespoons oil along with 2 tablespoons butter in large flat pan. Place the stuffed fish in pan and broil under low flame, basting with the butter-oil mixture. Add the remainder of wine to liquid in pan for basting. It is not necessary to turn fish. Keep flame low and when the top of the fish is golden brown or slightly darker, the fish will be cooked through. Spoon the remaining sauce from the pan over the fish and garnish with parsley and lemon wedges.

Fried Hard Shell Crabs

1 dozen crabs
3 cups milk (approx.)
1 tablespoon lemon juice
1 teaspoon paprika
1 tablespoon soy sauce
2 garlic pods, crushed
Salt and cayenne pepper

Scald crabs and drain. When cool, remove claws and outer shell. Clean thoroughly, leaving only that portion containing the meat. Mix remaining ingredients for a marinade. Marinate crab bodies for about 2 hours, turning occasionally. Remove from marinade, roll in flour and deep fry at 375° until crust is golden brown.

This method of preparation gives the crab meat a distinctive and delicious flavor. Caution! Do not eat the hard parts of the crab shell.

Deviled Crab

1½ cups crab meat
1 tablespoon butter
1½ tablespoons cracker crumbs
¾ cup cream
2 small eggs
¼ teaspoon salt
1½ tablespoons Dijon mustard
⅛ tablespoon cayenne

Flake and pick over crab meat. Melt butter in pan and add cracker crumbs and cream. Cook until thick. Remove from heat and add beaten eggs, salt, mustard and pepper. Add crab meat and stir gently. Put into 4 ramekins. Brush tops with melted butter and sprinkle with paprika. Brown in a 400° oven or under the broiler. Serves 4.

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